IMPROVING THE DIETARY HABITS OF A RURAL COMMUNITY

by RUBY M. ODELL

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IMPROVING THE DIETARY HABITS OF A RURAL COMMUNITY

IMPROVING THE DIETARY HABITS OF A RURAL COMMUNITY

THREE YEARS OF NUTRITION WORK IN CATTARAUGUS COUNTY

By RUBY M. ODELL
Formerly Nutritionist
Cattaraugus County Health Demonstration

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FIRST ANNUAL REPORT, 1923, Cattaraugus County Board of Health and Health Demonstration. *Cattaraugus County Board of Health*, Olean, New York, 32 pp.*

SECOND ANNUAL REPORT, 1924, Cattaraugus County Board of Health and Health Demonstration, by Leverett D. Bristol, M. D., 40 pp.*

THIRD ANNUAL REPORT, 1925, Cattaraugus County Board of Health and Health Demonstration, by Stephen A. Douglass, M. D., 50 pp.*

FOURTH ANNUAL REPORT, 1926, Cattaraugus County Board of Health and Health Demonstration, by Stephen A. Douglass, M. D., 107 pp.*

FIFTH ANNUAL REPORT, 1927, Cattaraugus County Board of Health and Health Demonstration, by Stephen A. Douglass, M. D., and Reginald M. Atwater, M. D., 80 pp.*

THE COUNTY HEALTH UNIT. The Next Step in the Development of Rural Public Health Work, by Governor Alfred E. Smith and others. *Milbank Memorial Fund*, 1927, 40 pp.*

CATTARAUGUS COUNTY AND OUR RURAL HEALTH, by John A. Kingsbury. *The American Review of Reviews*, 1927, pp. 415-420. *National Municipal Review*, June, 1927, pp. 363-369.*

EDUCATIONAL ASPECTS OF THE HEALTH DEMONSTRATION, by John A. Kingsbury, *The World's Health*, October, 1927, vii, No. 10, pp. 367-372.*

THE NEW YORK HEALTH DEMONSTRATIONS in Syracuse and in Cattaraugus County, by Sir Arthur Newsholme, M. D., *Milbank Memorial Fund*, 1927, 20 pp.*

PROGRAM OF SCHOOL NURSING FOR CATTARAUGUS COUNTY SCHOOLS, 1927-1928, by B. B. Randle, R. N. *Cattaraugus County School Health Service*, 414 Laurens Street, Olean, New York.

THREE YEARS OF SCHOOL HEALTH WORK IN CATTARAUGUS COUNTY, by C. A. Greenleaf, M. D., *Milbank Memorial Fund* 1929. *In process of publication.*

THE ORGANIZATION OF A TUBERCULOSIS PROGRAM IN CATTARAUGUS COUNTY, by Stephen A. Douglass, M. D. *Milbank Memorial Fund, 1929. In process of publication.*

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1929

PREFACE

A STORY of three years' experience of a nutrition worker engaged in studying and in attempting to promote the improvement of the dietary habits of the people of one rural community, may contain some helpful suggestions for those undertaking similar work in other rural communities. The writer, who served as a nutritionist on the staff of the County Board of Health in Cattaraugus County, New York, for the first two of the three years covered by this story, has tried to record as accurately as possible the technique used and some of the results accomplished. The record should not be construed as an effort to present a model plan of nutrition service for other rural communities, nor should the methods used by the nutrition worker to carry out the plan be considered ideal. It is hoped also that this account, a part of the general experience acquired in the Cattaraugus County Health Demonstration, may serve as a stimulus to the development of additional community case studies of the methods used and the results accomplished by nutrition workers in other localities, particularly in rural districts. The accumulation of a number of records of this kind would undoubtedly throw much light upon the problems encountered by those engaged in the administration of nutrition service in various types of communities, and would make possible an analytical study of the methods that have failed and of those that have succeeded.

The writer wishes to express her appreciation to those who have cooperated in the actual work in Cattaraugus County, as well as to those who have assisted in the task of collecting and preparing the material contained in the dietary study, which was initiated by Miss Flora Rose, director of the New York State College of Home Economics of Cornell Uni-

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versity; Miss Lucy H. Gillett of the New York Association for Improving the Condition of the Poor; and Dr. Henry C. Sherman, professor of chemistry, Columbia University. Supervision of the dietary survey is credited to Miss Gillett; and to Professor Flora N. Thurston of the New York State College of Home Economics of Cornell University, both of whom also gave valued technical counsel; and to Miss M. Penelope Burtis, graduate student of Columbia University, who organized the material for the vitamin study which was a part of the survey. Grateful acknowledgment is made of the interest of the Advisory Committee on Nutrition of the Milbank Memorial Fund and of the encouragement and assistance received from staff members of the New York State Charities Aid Association. Appreciation is also expressed to Miss Olga Gloy, graduate student of Columbia University; to Professor Mary Henry and Dr. Faith Williams of Cornell University; and to Miss Lucy J. Chamberlain of the Milbank Memorial Fund, all of whom helped in some special way.

The assistance rendered by the doctors, the public health nurses, and the Home Bureau of Cattaraugus County, as well as the cooperation of the hundred families who kept the dietary records during the survey, were most valuable in bringing about the results accomplished. Miss Genette Wierman, the nutritionist who succeeded the writer in Cattaraugus County, assisted materially in making possible a complete record by supplying the data concerning the outstanding developments in the work during the third year.

RUBY M. ODELL

Wilson Avenue School
Newark, New Jersey
January 23, 1929

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INTRODUCTION

RECALL the fact that the object of preventive medicine is to assist mankind to a more successful adjustment with his environment. This is as true when accomplished ideally through the intimate and personal relationship between physician and his health client as when it more commonly takes place in practice by the means of organized agencies of health, both official and volunteer. Granting this, we recognize the inevitable inclusion of a guidance in food habits among the methods and techniques of health education.

Probably at no previous time in the experience of our people have we recognized so many defects, diseases and disabilities, due directly or indirectly to errors of nutrition; to lack of adjustment of food intake to growth and energy needs; to unfamiliarity with the values and properties of a great variety of manufactured, stored and sophisticated edibles.

While many a former leader in the armies of death has fallen before the mass attack of bacteriologists and sanitarians, we see the steadily increasing throng of diabetics, the accumulating company of the obese, the rising death rate from appendicitis, the persistence of constipation—not to mention rickets and pellagra—facing us with a challenge worthy of our shrewdest judgment and most ingenious skill.

It was Sir George Newman who described the function of preventive medicine as "the building of a better tabernacle for the soul of man to inhabit." Is it not true, therefore, that practice and teaching of the science of nutrition is at the foundation of good public health work, just as the salvaging of the spirit of man by the resources of mental hygiene marks the capstone of the arch of modern medicine?

Miss Odell has invaded the privacy of the farmhouse kitchen, larder, and dining room, and has been welcomed as she entered bearing helpful gifts for old and young, for laborer and invalid, for fat and thin. She has learned the secrets of a community's habits of purchase and use of foods, and has carried her lessons back to school teachers and parents, to farmers, grocers, granges and clubs, with wit and wisdom appropriate to each occasion.

We learn that for something less than five cents apiece each year, even a scattered rural and county population of approximately 74,000 persons can command the indispensable skill and direction of a professional nutritionist to study, plan, develop, put into effective action, and supervise a scheme of food training to reach all the people. And better still, we find that once the essential record of dietary customs and malfeasances is known and a well proportioned county health organization is in operation, the money cost of permanent annual support of nutrition work need not be as much as a cent a year per capita of the population.

It is doubly welcome to learn that "Improving the Dietary Habits of a Rural Community" not only can be had at a modest cost, but that in the prosecution of the plan no violence need be done to the well accepted and trustworthy resources of public school education or to the personnel and organization of public health services. We are easily convinced by Miss Odell's conservative and well supported record of experience that a nutritionist, a trained professional expert in the selection and use of foods for the best of health at all ages, should be a permanent member of the staff of the county health officer and of that of the superintendent of schools of every community capable of supporting full-time officers in these positions. Such a nutritionist, on a whole or part-time basis, might well be shared as to salary and

services by the educational and health departments. She is undoubtedly necessary as a member of the supervising staff of any public or private visiting or public health nursing organization.

School principals, teachers and parents alike need her help in seeing that their common responsibility, the school child, grows in physical strength and fitness through the right selection of foods, at least as steadily and safely as it gains in knowledge and character by mental pabulum and social discipline.

Miss Odell had an unique opportunity. She made first rate use of it and has recorded the methods of study and the technique of administration in a way to serve the public and its established officers of health and education.

HAVEN EMERSON, M.D.

Columbia University
February 4, 1929

LOCATIONS IN THE
STATE OF NEW YORK OF THE
HEALTH DEMONSTRATIONS OF
THE MILBANK MEMORIAL FUND
Urban Demonstration
SYRACUSE
Rural Demonstration
CATTARAUGUS COUNTY
Metropolitan Demonstration
NEW YORK
SCALE-STATUTE MILES
0 10 20 30 40 50
St. Lawrence
Franklin
Clinton
Essex
Jefferson
Lewis
Herkimer
Hamilton
Warren
Washington
Oswego
Oneida
Fulton
Saratoga
Niagara
Orleans
Monroe
Wayne
Onondaga
Madison
Montgomery
Schen.
Rensselaer
Genesee
Ontario
Seneca
Cayuga
Erie
Wyoming
Livingston
Yates
Cortland
Otsego
Schoharie
Albany
Chautauqua
Salamanca
Olean
Allegany
Steuben
Schuyler
Chemung
Tioga
Broome
Chenango
Delaware
Greene
Columbia
Ulster
Dutchess
Sullivan
Orange
Putnam
Rock.
Suffolk

Fig. 1.

I

FIRST STEPS IN ESTABLISHING THE NUTRITION WORK

SINCE the nutrition of the individual is one of the fundamental factors in building a sound body structure and in achieving vigorous health, the food habits of people are of vital concern in any health movement. The building of stronger bodies through the correction of dietary deficiencies and through the promotion of better food habits and food selection, lessens the incidence of disease and increases the ability of individuals to live happy, successful lives.

The place which nutrition work was to occupy in the Cattaraugus County Health Demonstration was, therefore, considered early by the County Board of Health. With the aid of appropriations from the County, from the State of New York and from the Milbank Memorial Fund, the Board had undertaken to set up in Cattaraugus a thorough and efficient county health service, which would serve as a demonstration in rural public health administration. Created in January, 1923, by the local Board of Supervisors, the Cattaraugus County Board of Health was the first in New York State to be established under the permissive law of 1921, authorizing county supervisors to organize county health units.[1]

The Board had invited and secured the active cooperation of other local groups including the County School Health Service and the County Tuberculosis and Public Health Association, both of which received appropriations from demonstration funds. With the help of the Technical Board of the Milbank Fund, the County Health Board also invited and secured the counsel of a number of state and national groups, among them an Advisory Committee on Nutrition,

[1]Milbank Memorial Fund *Annual Report*, 1923, p. 25.

appointed to render technical advice regarding the place which nutrition should have in the general public health program of the County and to help the latter Board plan such a program as seemed advisable to attempt to include in a reasonably adequate public health program for a rural county. This Committee was composed of: Haven Emerson, M.D., professor, public health administration, College of Physicians and Surgeons, Columbia University; John C. Gebhart, then director, department of social welfare, New York Association for Improving the Condition of the Poor; Miss Lucy H. Gillett, superintendent, nutrition bureau of the New York Association for Improving the Condition of the Poor; Miss Flora Rose, director, New York State College of Home Economics, Cornell University; Professor Henry C. Sherman, department of chemistry, Columbia University; Charles Hendee Smith, M.D.; and Linsly R. Williams, M.D., managing director of the New York Academy of Medicine.

As a part of the general public health program included in the demonstration, augmented services were set up by the School Health Service and the County health association. The County Board of Health included in its immediate program services for the conduct and maintenance of which it set up bureaus of tuberculosis; health education; communicable diseases and diagnostic laboratory; maternal, infant and child hygiene; records and vital statistics; and public health nursing. Each of these bureaus was headed by a full-time director, a full-time county health officer serving as chief of staff.

Upon the advice of the Committee on Nutrition, the County Board of Health also placed on its staff a special nutrition supervisor to teach the public health nurses and public school teachers the principles of nutrition and thus to

stimulate them to teach others. After a few years of such instruction and stimulation, it was believed that the nurses and the teachers would be capable of carrying on the nutrition work without the need of the permanent supervision of a nutrition specialist.[2] It was believed impracticable to attempt to build up a nutrition service which would be distinct and separate from the services for which special bureaus were set up. The nutrition worker was therefore assigned to work in the public health nursing bureau, where as opportunity arose she could be of assistance to doctors, nurses and teachers, in their work with individuals and with groups.

The nutritionist began her work in April, 1924, her salary for the first three months being paid by the New York State College of Home Economics of Cornell University. She shared an office with the College's local extension worker, the Cattaraugus County Home Bureau manager stationed at Salamanca. The Home Bureau, which was supported jointly by Cornell University, the State and Federal Departments of Agriculture, and the local county government, had for some time been stimulating groups of women in the County to take an interest in the problem of nutrition.[3] The College of Home Economics of Cornell was represented on the Nutrition Advisory Committee by Miss Flora Rose. Upon recommendation of this Committee, the Milbank Memorial Fund authorized an appropriation from demonstration funds to enable the County Board of Health to take over the salary and other necessary expenses of the nutrition worker, and she joined the Board's staff on July 1, 1924, continuing there the work she had begun as a field worker of the College of Home

[2]Minutes of the meetings of the Advisory Committee on Nutrition of the Milbank Memorial Fund, January 18, 1927, pp. 1-2.

[3]Gebhart, John C., The Nutrition Work in Cattaraugus County; an address before the New York State Conference on Tuberculosis, June, 1926. Mr. Gebhart was at that time secretary of the Milbank Memorial Fund's Advisory Committee on Nutrition.

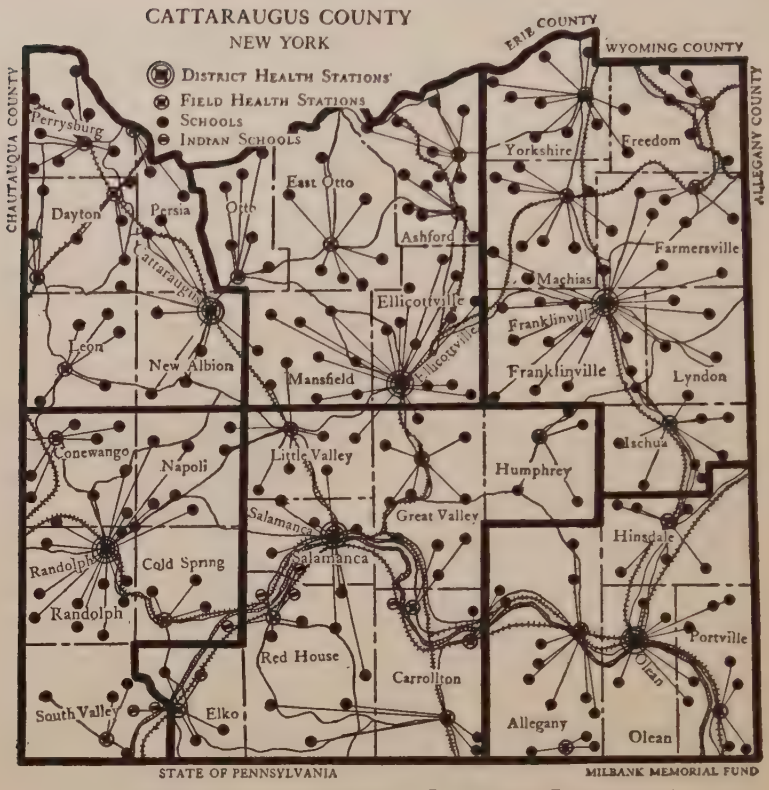

Fig. 2. Health stations and schools in Cattaraugus County, 1926.

Economics. She continued to receive counsel and guidance from the College, as well as from the supervisors of nutrition in the New York State Departments of Health and of Education, and from the Nutrition Advisory Committee.

II

A DIETARY SURVEY[1]

AS an approach to the task of spreading knowledge about nutrition through the channels established for development of the public health program in Cattaraugus County, it was decided to conduct a survey to secure information regarding the food habits of a group of people in the County. This was the first task undertaken by the nutrition worker upon coming to the County. Naturally, it was necessary to know as much as possible about the food habits of the people of the County before trying to improve them. Some information which had a general bearing on this subject had already been made available through the physical examinations of a majority of the 18,000 odd pupils enrolled in the County's 299 city, village and rural schools. Medical records of adults and preschool children examined in the diagnostic clinics held in the district health stations of the County Board of Health[2] were also available. These data were secured and analyzed, and they were useful chiefly for the indication they gave of the food habits of the school children, and of the presence of physical disorders which probably had been affected by food habits.

The survey, which was undertaken for the latter purpose, was carried on in an interesting way. Instead of bringing a group of especially trained investigators into the County to ask many seemingly impertinent questions, the nutritionist

[1]Odell, Ruby M., Nutrition, an important part of the rural health education problem as shown by the program in Cattaraugus County. Under this title, all of the original data relating to the dietary survey, including the case studies, have been compiled in a thesis (Master of Arts). This thesis is on file in the library of the New York University School of Education, New York.

[2]Due to the size of Cattaraugus County, the County Board of Health found that it would be unable to administer its work efficiently from one central office. The County was therefore divided into six sections and a district health station was established in each. Later two sub-district health stations were established, thus increasing the number of territorial divisions to eight. The district stations serve as headquarters for the public health nursing service and all the other activities of the County Board of Health, including various types of clinics and conferences.

planned to use representatives of the thirty local groups of Home Bureau women to assist in the collection of data concerning the food practices in homes chosen as representative of typical Cattaraugus County families. The Home Bureau women had been engaged in various community projects under the leadership of the extension department of the College of Home Economics of Cornell University and had been found interested and cooperative in such undertakings.[3]

One hundred families, representing a total of 479 persons, were persuaded to keep careful records of all food used for a period of seven days in preparing meals for their families. Uniform methods were followed in weighing and measuring foods. At the beginning of the first day an inventory was made of all of the foods on hand. Each day the amount bought was recorded. At the end of the seventh day another inventory was made. The difference between the two inventories added to the amount purchased during the week gave the total amount of food used by the family. The presence of guests or the absence of members of the family from any of the meals was noted, and as far as possible allowance was made for any food fed to animals or thrown away, but not for waste in preparation or cooking or serving. The prices of all foods bought, or the market value of foods grown at home, were recorded, to make possible a comparison of the cost of living on farms, in villages, and in cities in the County. To facilitate and simplify the work of making the records, forms were furnished for the purpose.[4] The housekeepers who made the records had to be carefully supervised and in this the nutritionist was aided by volunteers and by staff workers of the County Board of Health.

In selecting the hundred families who were to partici-

[3]Gebhart, John C., The Nutrition Work in Cattaraugus County; an address before the State Conference on Tuberculosis, June, 1926.

[4]Copies of these forms may be obtained from the Milbank Memorial Fund.

pate in the study, several factors were considered by the nutritionist and her volunteers. Place of residence was one. They endeavored to enlist an equal number of families from the cities, the villages, and the rural sections, to discover what, if any, differences existed in their food habits, and how food prices ranged in different localities.

In addition to securing the material for comparative studies, concerning the possible relation of location to diet and to price of food commodities, material was also collected to establish any relationship that might exist between occupation and diet. Families were selected with reference to the occupation of the chief wage earner, and for purposes of study divided into three groups, classified as (1) professional and clerical workers, (2) town laborers, and (3) farmers.

All the records were not made during the same week. In order that seasonal factors might be taken into consideration, the nutrition survey extended from April, 1924, to April, 1925, a number of records being obtained each month.

As the records were collected month by month, the nutrition worker through the study of each record discovered the deficiencies in the diets of individual families. The findings in connection with the first dietary studies submitted, together with the information obtained from the records of the physical examinations of the school children and of adults and preschool children examined in the diagnostic clinics of the County Board of Health, enabled the nutritionist to begin an educational campaign before the survey was completed.

Before the completion of the survey also, some very interesting variations in the dietaries of the city, village and rural district family groups were noted. The nutrition worker was surprised to find that in the rural districts green vegetables were actually used less than in cities and villages. This discovery at once influenced the educational program for the

rural family groups. The nutritionist began to encourage the planting of vegetable gardens adequate enough to supply the family food stores with green vegetables in the winter as well as in the summer. In this work the nutritionist was assisted by the women of the Home Bureau, who at her suggestion undertook as their special project for the year 1925, the task of stimulating people in the County to plant gardens. Another remedy which immediately suggested itself was the need for the proper storage of vegetables for winter use. It had been found that while many farmers raise a large quantity of vegetables during the summer, for lack of proper storing facilities such vegetables are not available for winter use. It was a simple matter, therefore, to show the farmers how, by the expenditure of a very small amount of money, storage facilities could be provided. Steps were taken through county fairs, and in other places to show them how vegetables might be stored for winter use.[6]

The hundred families participating in the food studies had been recruited through several channels. Members of the Home Bureau themselves and their friends had made some of them. Twenty-eight of the studies were obtained from the families of girls enrolled in the home economics classes of the high schools, whose teachers assigned as home project work the task of making the studies. Several of the records were made by families who were recruited by public health nurses; and forty were secured by the nutritionist. Fourteen studies were made by women who were keenly interested in providing the right sort of food for their families. Instruction in food values and food selection, previously received through the medium of nutrition specialists, the Home Bureau classes, or the home economics classes of the high schools, had already helped them to establish acceptable standards. Due to the

[6]Gebhart, John C., op. cit., page 16.

special training these women had received, it was recognized that the dietary records they contributed would not be a true index to the food habits of Cattaraugus County families, and their records were assembled and studied separately.

The records of the remaining eighty-six families, representing studies of the dietary habits of 230 adults and 201 children, were used as the actual basis of the food study.

At the end of the year when all of the records had been collected and put into shape for study, they were analyzed to determine the calorie, protein, mineral and vitamin content of the family dietaries and the cost of the foods they listed.

The records of the fourteen families trained in the selection of foods "showed an average well above the standards proposed by the Cornell College of Home Economics in the amount of fruits, milk, green vegetables and other articles of food, and no shortage of minerals; but in calories and in protein value they were higher than is necessary, and the cost (63 cents per man[7] per day) was higher than necessary.

The 86 dietaries do not represent conditions among the poor of the County, but among the more prosperous families, and probably the very fact that the record was being kept for a nutrition specialist tended to make the food for the week rather better than usual. In some cases, moreover, suggestions were asked on the first visit; and no doubt the nutritionist's advice resulted in some immediate improvement.

"In caloric contents the dietaries were high. Only 11 of the 86 were decidedly deficient on this score, while 22 were so high as to indicate either overeating or unrecorded waste of food, or both. (Possibly also, through oversight, portions of

[7]For the purposes of this study, the dietary requirements of a man in full vigor at moderate work, as set forth on pages 361–378 of the *Agriculture Year Book, 1907*, of the United States Department of Agriculture, were used as a standard. See the table entitled "Relative Values for Food Requirements of Persons of Different Ages and Occupations as Compared with a Man in Full Vigor at Moderate Work."

food recorded as eaten by the family may sometimes have been fed to house pets, chickens, or farm animals.) Similarly, only 4 were deficient as to protein, while 53 contained more than the 'standard' amount. Eighteen were judged deficient in iron, 11 in calcium, 5 in phosphorus; and 24 were scored 'poor' or 'fair to poor' for foods containing vitamins.[8]

"There were none that had too little sweets, meat or potatoes; but 63 were deficient in green vegetables, 29 in other vegetables, 28 in milk, 26 in eggs, 25 in fats, and 14 in fruits, according to the Cornell standard. Sixteen of the 86 families used no green vegetables at all during the week that they kept the record and 28 used less than the desirable amount of one or two servings of vegetables per man per day. The farm families used less vegetables and fruit and meat than the city families; more milk and cereals and potatoes.

"The average cost per man per day was 51 cents for the 86 families, ranging from 28 cents to 81 cents. Examination of the schedules indicated that a satisfactory standard could be maintained for about 45 cents per man per day."[9]

The dietary faults revealed through the survey determined for the nutrition worker the points upon which emphasis should be placed; (1) the potential bad effects of too much protein, starch, and sugar; and (2) the need of a generous supply of green vegetables and the value of milk. The farmers, especially, seemed to need education on the former, the city people on the latter. These conclusions were reinforced by the prevalence of obesity and constipation among the adult population of the County, and by various indications of malnutrition among the children.

[8]A dietary was considered "poor" if it was deficient in three or more of the foods containing vitamins and "fair to poor" if it was fair in two and poor in two of the foods containing vitamins.

[9]Milbank Memorial Fund *Quarterly Bulletin*, January, 1927, pp. 6, 7.

III

DEVELOPMENT OF THE PROGRAM

IN the work developed by the nutritionist at the conclusion of the survey three principal types of activities were undertaken—consultation service to physicians regarding patients suffering from dietary ailments, a program of adult education, and a school health program.

Individual cases were referred by doctors for advice in dealing with such nutritional difficulties as constipation, overweight, underweight, and indigestion. Between twenty and thirty such cases received the attention of the nutritionist monthly. A description of one of them will serve as an illustration of what this sort of service often involved. The home had been broken by the loss of the mother, who had died of tuberculosis. A daughter was ill in the County Tuberculosis Sanatorium. The other daughter, a junior in high school, was responsible for the preparation of meals for her father and her three brothers. Their food consisted of fried pork, three times a day; fried potatoes, twice a day; bread, butter, and cakes. No milk was used.

The nutritionist taught the girl how to use the same time, effort and money, to better advantage. Cream soups, a variety of fresh vegetables, and milk were added to the diet, and the disadvantage of so much meat was stressed. The girl applied the lessons and in a short time results beneficial to the whole family were noticeable.[1]

Such corrective case work with individuals might well have consumed a much greater share of the nutritionist's time than was originally planned had it not been for the cooperative arrangement between the nutrition worker and the public health nurses of the County Board of Health. While supplementing the nutritionist's efforts to cooperate

[1]Cattaraugus County Board of Health *Annual Report*, 1924, pp. 33–34.

with physicians on individual cases, the nurses themselves received instruction in the principles of nutrition.

Not only did the nurses participate in the corrective phase of the work, but they also took an active part in the educational program. To prepare them for this the nutritionist gave a series of lectures to the nursing staff as a whole and thereafter accompanied each nurse on a number of visits to homes and schools, illustrating practical methods of teaching the essentials of nutrition to individuals and groups.

About a fourth of each month was set aside by the nutritionist for work with the eight public health nurses stationed at the six district and two sub-district health stations of the County Board of Health. The nutritionist gave an entire day once a month to each nurse, and allowed her to plan her own program for the day. Each nurse had a local advisory committee and on a number of occasions the nutritionist was asked to confer with one or another of these committees with reference to certain local projects the committee members contemplated organizing. Often, the nutritionist was asked to give group instruction to mothers, women's clubs, and other local groups. On one occasion a nurse brought together the mothers of all of the underweight children under her care and the nutritionist conducted helpful discussions relative to the problems of these children.

Sometimes the nutritionist timed her visits to the district health stations so that they concurred with the dates set aside for the holding of prenatal, postnatal, or preschool clinics, for many of the individual cases referred by the physicians originated in these clinics. During these advisory visits instruction was frequently given at the request of the physicians to groups of mothers with reference to the feeding of young children. More eagerly received than any other part of the instruction offered on these occasions, perhaps,

was the assistance given mothers in adding the first foods to the baby's diet. The mothers were also very much interested in suggested methods of dealing with the food idiosyncrasies of children. The instruction given at these clinic conferences was most practical in nature, covering many such details as the quality and quantity of the food that should be served to children, the hours at which children should be fed and the number of meals necessary daily to promote healthy growth.

In all the projects described and in many other ways the nutritionist worked in close cooperation with the physicians and the public health nurses. Many were the problems which the nutrition worker upon request discussed with physicians and nurses in group conference. The nurses were keenly aware of the value of preventive work and under the leadership of the nutritionist helped to carry out both the school health and the adult education phases of the program.

The Adult Education Program

Groups and organizations already in existence in Cattaraugus County served as the nucleus of the nutritional program in adult education. This was in accordance with a policy of the County Board of Health to work wherever possible through already organized groups in lieu of setting up new organizations. Granges, parent-teacher associations, civic leagues, village improvement societies, school boards, groups affiliated with churches, and clubs were among the types of organizations that asked for and received instruction in nutritional health work. These groups formed a network throughout the County and through them leaders representative of the key groups in the community were reached.

Usually instruction was given to these groups at one of their regular meetings through the medium of a single speech. It was not possible on account of the pressure of other duties

for the nutritionist in the majority of cases to follow up personally the contacts made with these groups. Therefore, in order to accomplish as much as possible through these single contacts, the nutritionist usually gave a general health talk first and then attempted to focus attention on some local health problem. In simple language, practical methods of attaining better health standards were described. Emphasis was placed upon the findings of the nutrition survey and specific instruction was given as to ways and means of correcting the deficiencies in diets revealed through the dietary studies. Following the talk an opportunity was usually provided for questions and general discussions. Sometimes the speech was supplemented by an exhibit, a moving picture, or a popular entertainment of some sort. On one rainy night, following a stormy day, a grange meeting held in a small rural settlement for the special purpose of meeting the nutritionist was attended by a crowd of seventy people, in spite of the fact that the roads were almost impassable.

Effective work with adult groups was accomplished through the Cattaraugus County Home Bureau under the supervision and with the cooperation of the extension service of the New York State College of Home Economics. As has been stated there were thirty groups of rural women affiliated with the Bureau, each representing some village or rural settlement. The nutrition program was transmitted to the members of these groups in an unusual way. Mass instruction would have been less effective and certainly impractical from every angle. In the first place, it was highly improbable that the members of the various groups would find it possible to attend meetings regularly at a central meeting place. Therefore, a self-teaching plan was adopted.

Two representatives were appointed or elected annually from each of the thirty groups of Home Bureau women to

serve as nutrition leaders of the group for one year. These representatives were divided into six territorial groups, and each group of representatives met monthly with the nutrition worker in a town centrally located for all-day sessions or lesson conferences. A choice of a number of short courses consisting of four lessons each was offered, and, as the instruction most needed by the groups of women they represented, the local leaders selected five courses: "Food Selection," "Simple Disorders of the Alimentary Tract," "Amounts of Food Necessary for Growth and Maintenance," "Food Supply," and "Child Feeding." At the all-day lesson conferences the local leaders were given thorough instruction in the subject matter, an explanation of its significance, and training in methods of presenting it to adult groups. Each representative then returned to her group and transmitted to the members of the group the instruction she had just received. The attendance at the classes taught by the local leaders indicated the interest with which the lessons were received.

The School Health Program

The adult education program in nutrition and the nutritional phase of the school health program proceeded simultaneously and were largely interdependent. The launching of the school health program was somewhat complicated by the large number of schools and the wide distances between many of them, as well as by the large percentage of malnourished children found in the physical examination survey of the school children made by the physicians of the County.

The school health program, as originally planned, included a provision for special attention to the diet of the school child. To a certain extent, instruction in nutrition was given directly to the pupils by the nutrition worker, but for the most part, the nutritionist worked indirectly through the

teaching personnel of the County, composed of the nursing staff of the County Board of Health, the rural school teachers, the fifteen home economic teachers of the high schools, and the local leaders of the Home Bureau. The increasing demands upon the time of the nutritionist had made necessary some systematic plan for apportioning it. As a result, in September, 1925, upon the request of the local worker, the supervisors of nutrition of the State Departments of Health and of Education, a specialist from the New York State College of Home Economics, the director of the bureau of public health nursing of the Cattaraugus County Board of Health, and the county supervisor of school nursing conferred with her upon the relative importance of the various phases of the nutrition work. An agreement was reached and after that conference the nutritionist spent ten days each month with the teachers of the schools, eight days with the nurses, and four days with the Home Bureau, teaching particularly the dietary needs of the school child.

In rural sections the responsibility for health instruction falls of necessity largely upon the shoulders of the school teachers. Their understanding and cooperation, therefore, are invaluable assets in working out any health program in the schools. Gaining the cooperation of the principals and the 365 grade teachers in the 269 rural schools and cultivating a desire on their part to assist in forwarding the nutrition service, was a part of the nutritionist's task. The district superintendents of the five rural supervisory school districts[2] in Cattaraugus County were cooperative in giving the nutritionist time on the programs of the teachers' meetings. In four of the five school districts, a brief course on the

[2]For administrative purposes, and in accordance with the provisions of the Educational Law of the State of New York, the local school districts are grouped into rural supervisory school districts, each with a district superintendent. There are five such rural supervisory school districts in Cattaraugus County, with supervision over all of the public schools outside of the two cities of Olean and Salamanca.

nutrition of school children was given the teachers, including material on the organization of the hot lunch, and menus showing the foods to be served to children for breakfast.

Instruction was also given to the four teacher-training classes in the County. Through these classes an average of seventy-five young men and women yearly are prepared for teaching service in the rural districts. After a year of training they receive second grade certificates entitling them to teach in the rural schools for two years. As a rule, the students enrolled in these classes understand rural conditions and are anxious to meet the needs of their future pupils in the most effective manner possible. Twice monthly throughout the school year the nutritionist gave instruction to these classes. During the first three months the lessons dealt with the food needs of the school child and ways of supplying them. Through the remainder of the year practical methods of teaching the essentials of nutrition to children were discussed and teaching material was supplied to members of the classes.

The direct program with the schools centered around two main projects during the first year. The nutritionist, together with the public health nurses and the rural school teachers, emphasized particularly the importance of hot school lunches, or the serving of at least one hot dish at noon to supplement the cold lunches the children usually brought from home. A school lunch program in a rural school district is an important feature of school health work, both because of its immediate effect upon the health of the children and because it serves as a valuable channel for the dissemination of health education. In rural districts, the long distances children must travel from their homes to their schools make it necessary for them to bring their lunches to school. To have them bring vegetables, milk and other articles of food essential to good nutrition was not difficult. In some communities

where the mothers were very cooperative, each mother in turn planned and furnished enough food for all the pupils in the school for one lunch. The food was prepared and cooked in the presence of the pupils, often with the teacher's help.

As the second project for the first year, 1924–1925, the nutrition specialist selected four schools of different types for experimental work in developing a nutrition program. The first two schools selected were typical one-room rural schools located in sparsely populated sections of the County.

In the first, a school of sixteen children with one married teacher of middle age, the nutrition worker initiated all the health work, visiting the school once a week for this purpose. In the intervals between visits, the work was carried on by the teacher. Excellent results were obtained in this school. The custom of serving a hot lunch to the pupils daily was established; a health club was organized and served as a medium for stimulating the children to participate earnestly in a number of health projects; and a fine attitude toward achieving good health was developed.

The second school, one with a group of twenty-five pupils, taught by an energetic young teacher, received less personal attention from the nutritionist. She visited the school only once, but followed this visit with an occasional letter to the teacher. Two health projects developed as a result of this contact. A hot lunch was established and a "keep well corner"[3] installed. The attitude on the part of the children toward the health chores assigned them improved, but there was developed little genuine appreciation of the reasons for performing them. Perhaps a few more direct personal contacts between the nutritionist and the teacher and children in this school would have created a better under-

[3]A corner of the school room designated as a "keep well corner" was frequently set aside by the teacher for the use of school doctors and nurses while making physical examinations and inspections of school children. In this corner were assembled the first aid kit and special materials used in teaching health to the children.

standing, for it is an acknowledged fact that personal contacts are as a rule more effective than those made by letter.

The third school was a three-room village school with an enrollment of about sixty children. Although the nutritionist visited this school monthly, the nutrition program was carried out by the teachers and pupils themselves. Excellent work was accomplished in each of the three rooms but perhaps the most effective program originated in the room that housed the seventh and eighth grade pupils. These pupils organized a health club and initiated plans that affected the whole village in which the school was located.

The fourth school, a village school of modern construction, furnished field work for the members of the teacher-training class, who were enabled to put into actual practice there the lessons they had previously learned from the nutritionist. These teachers in training, under the supervision of the nutritionist, were enabled to demonstrate in a most practical manner how the teaching of nutrition and health may be correlated with other subjects in the curriculum, and that such subjects as reading, arithmetic, spelling and geography can be taught through the medium of health education as well as through the conventional subject matter.

These four schools in which the experimental nutrition work was carried on served as a nucleus for the development of a nutrition program in the rural schools. The large number of rural schools and the limited time available for school work were factors which made it impossible for the nutritionist to establish similar contacts with all of the other schools during this first year. The nutritionist felt that it was more fundamental to reach the teachers and train them to teach the essentials of nutrition to their pupils. Individual schools were visited only at the request of the teacher or the school nurse. The teachers, who on the whole were successful

as health instructors, usually welcomed supervision to keep them in touch with new methods and sources of material.

During the second year of the nutrition program, 1925–1926, the nutritionist gave more individual attention to the rural schools. Seventy-six schools were visited and ninety-one health talks, and health lessons with special emphasis upon nutrition facts, were given throughout the year. Illustrative material was used with these talks and lessons, in order to make them attractive to the children. For example, the value of milk in contrast to coffee and the dependence of milk upon vegetables and fruits was taught with material obtained from the National Dairy Council. Magazine pictures and slides obtained from the Bureau of Education in Washington, D. C., served to emphasize the value of physical health.

In connection with the health lessons, games and posters were planned and made by the children. A game of Authors with fruits and vegetables substituted for books was made in one school. In another, an Uncle Wiggly game was made over into a very attractive health game. The same cards were used, but the game of advancing and retreating was governed by health rules. Many books were used also, the two most popular being "Boys and Girls of Wake-Up Town" and "Health and Success."[4] Through these talks and lessons, a very large number of teachers and pupils were reached during 1925–1926 and encouraged in their health activities. Material for teaching nutrition, distributed among the teachers, was eagerly accepted by them and put into use. Special talks to enlist the parents' cooperation in the school health program, given by the nutritionist, the teachers, and the school nurses, reached 620 parents during the same year. Booklets on food habits and educational contest material for better breakfasts were distributed among these parents.

[4]These books are prepared by Andress and Evans, and published by Ginn and Company, 70 Fifth Avenue, New York.

These and many other ingenious methods were devised in cooperation with the Home Bureau, the school teachers, the nurses and doctors, and many others in the County, to enable them to teach children to like the foods that are good for them; to adopt health-promoting habits; and to stimulate in their parents an interest in providing a well-balanced diet and in encouraging their children in hygienic practices.

During this second school year, as in the previous one, the necessity for at least one hot dish for the noon school lunch received constant emphasis. New recipes for milk-vegetable soups were furnished the teachers by the nutritionist. Three types of equipment for preparing the hot lunch were displayed and their use demonstrated to interested groups. Such equipment was displayed at a number of school fairs and for a week at the County Fair, while a miniature equipment was carried about and demonstrated in various isolated schools. Unusual interest was shown by the teachers, as indicated by the fact that eighty-six schools during the year 1924–1925 installed facilities for the preparation of hot lunches, and ninety-nine during 1925–1926. By June, 1928, the number had increased to 136.

All the foregoing projects in connection with the schools were educational in nature. There was little opportunity for the nutritionist to do corrective work with individual children, in spite of the fact that the large percentage of underweight school children discovered through the physical examination survey plainly indicated the need.

Early consideration had been given to proposals that the nutrition class method for dealing with undernourished children, first developed twelve years ago by Dr. William R. P. Emerson of Boston in connection with his work in the Massachusetts General Hospital, be adopted, since it was the method most commonly used elsewhere. Upon advice of

the Advisory Committee on Nutrition, however, it was decided that it would be impractical to use this method as the basis of the nutrition work in Cattaraugus County because of the operating expense that would be involved. Members of the Committee estimated that about six workers would be needed to carry on the work should the nutrition class method be adopted, and that such a program would entail an annual expenditure of about ten thousand dollars. This cost, they felt, would be unwarranted for a County like Cattaraugus, as it would be out of proportion to other necessary expenditures for health work. The Committee recognized, therefore, that a plan involving considerable modification of the nutrition class method would have to be recommended.

For demonstration purposes, however, groups of underweight children in two schools were selected and organized into special classes by the nutritionist for direct instruction. Each class was given twelve one-hour lessons on health habits. The home economics teachers assisted the nutritionist in her work with these classes by serving the children extra meals of crackers and milk. At the end of the school term nineteen of the thirty-six children enrolled had reached standard weight for age and height, and all of the children showed some gain. Much work could have been accomplished by the nutritionist through similar work with other groups of underweight children, but the large number of underweight children in the schools of the County rendered it impossible for her to plan for classes of this type on a large scale. They would have occupied all her time. The temptation to do more individual case work, particularly with the children, was often felt by the nutritionist, but on the whole she followed fairly closely the plans mapped out for her work, devoting a limited amount of time to individual service and the major share of her efforts to the educational phases of nutrition.

IV

SOME IMPRESSIONS OF THE VALUE OF THE NUTRITION SERVICE

OF interest is the volume of work that was accomplished from April, 1924, when the nutrition service was inaugurated, to the first of January, 1928, when, in accordance with the original plan, the entire responsibility for continuance of the nutrition program was taken over by the public health nursing service and by the teachers; and the special activities promoted by the nutrition service merged with other general health activities of the County Board of Health.

As has been indicated, the work with individual cases, carried on at the request of the physicians and in cooperation with public health nurses, and dealing with such problems as constipation, arranging the diet of expectant mothers, preparing dietaries for diabetic and other types of patients, and adjusting the diets of extremely undernourished and underweight children, although limited in extent, occupied much of the worker's time. In 1924 she did intensive work of this character with 120 cases. In the following year, 240 individuals were cared for. Complete figures for the number of cases handled during 1926 and 1927 are not available at this time. The fact, however, that during the first three months of 1926 assistance was given to 125 individuals would indicate that the nutritionist's case load increased materially in 1926, and probably also in 1927.

An interesting outgrowth of the service to individual cases was the consultant work that developed, one phase of which was the Children's Health Camp conducted by the County Tuberculosis and Public Health Association. During the summer months of July and August each year, between 125 and 140 underweight school children enjoy the benefits of

this Camp, which is located in Allegany State Park. At the request of the director of the Camp, the nutrition worker not only assisted in planning educational devices to interest the children in developing, while at the Camp, habits that would result in better health, but also helped to plan well-balanced meals for the children during their stay there.[1] The Bureau of Tuberculosis of the County Board of Health also sought help in connection with dietary schedules for small children in the families of patients. The County Tuberculosis Sanatorium asked for an analysis of the daily menus arranged for the patients and for suggestions for improving them, while the social workers of the County from time to time sought advice in connection with making a budget for a family under social service care.[2]

Through the adult education program with groups and organizations already in existence in the County, large numbers of persons yearly received instruction from the nutritionist. Part of this instruction was disseminated through articles on various phases of nutrition published in the newspapers of the County,[3] and there is no way of estimating the number of adults reached in this way. Doubtless effective work was accomplished through the direct contacts already referred to, with such groups and organizations as the parent-teacher associations and granges at their regular meetings. For example, in the year 1926, instruction in nutrition given in sixteen community meetings reached a total of 711 people. Approximately the same number of people were reached in this way during the previous year, and assistance was given

[1]The Cattaraugus County Health Camp in Allegany State Park, New York. Milbank Memorial Fund *Quarterly Bulletin*, April, 1927, pp. 37-43. This article contains a description of the activities of the Camp and places special emphasis upon those pertaining to nutrition.

[2]Milbank Memorial Fund *Quarterly Bulletin*, January, 1927, p. 3; also Cattaraugus County Board of Health *Annual Report*, 1926, p. 74.

[3]Cattaraugus County Board of Health *Annual Report*, 1924, p. 32.

to various types of groups in the preparation of nineteen community meals which were attended by a total of 616 persons. In addition, health exhibits of different kinds were displayed to adult audiences in various parts of the County, on occasions such as County Fairs and Better Home Week celebrations.

The most consistent progress in meeting the housekeepers of the County, upon whose shoulders, after all, rested the responsibility for making any changes in family dietaries brought about as a result of the nutrition program, was made through the Home Bureau. During the last eight months of 1924 and the year 1925, the group leaders, described earlier,[4] conducted ninety-five meetings in various sections of the County, transmitting to their fellow members the lessons they had previously been taught by the nutritionist and interesting them in nutrition projects. The total attendance at these meetings was 1,088; and, in addition, 1,295 persons were reached outside of meetings through the efforts of these women. In the year 1926, the group leaders held 106 meetings, with an attendance of 1,820. The project for that particular year was a study of the local food supply. Largely as a consequence of the attention focussed upon this problem, local stores, in order to supply the insistent demand for certain essential foods, were forced to add to their regular stock such things as green vegetables, fruit and whole grain cereals, which in the past many of them had supplied erratically or not at all. Still another outcome of the emphasis placed upon increasing the food supply in rural sections, so that it would be adequate to meet the requirements of correct dietary standards, was the fact that in 1926 seventy families planted their gardens and canned and stored foods for winter use.[5]

[4] p. 24.
[5] Cattaraugus County Board of Health *Annual Report*, 1926, p. 73.

Total figures for the number of women reached during 1927 through the local leaders of the Home Bureau groups are not available, but the nutrition worker made twenty-seven talks to the group leaders, the total attendance at the meetings she addressed being 425.[6]

The scope of the work in connection with the development of the school health program, involving annually lectures at teachers' conferences, instruction of the four teacher-training classes in the County and health talks and lessons to teachers and pupils given by the nutrition worker and by members of the County nursing staff, increased steadily from year to year. In 1924–1925, a total of 102 visits were made to sixty-seven schools, and 1,500 school children were reached at least once. During the school year 1925–1926, a total of 2,316 teachers and pupils received instruction. The nutrition specialist and her coworkers conducted classes during the 1926–1927 school year in ninety-two schools, the total attendance at these classes being 3,042.[7] Nor did the classes taught by the health specialists comprise all the health instruction. Much the greater part of it was given to the pupils by their regular teachers. In fact, such progress as was made in the school health program was largely due to the interest and active cooperation of the teachers. Particularly were they responsible for the success of the hot lunch project. In the school year 1923–1924, no school in the County provided a hot lunch. By the end of June, 1928, 136 schools had installed hot lunch equipment (consisting in most instances of an inexpensive oil stove upon which hot dishes could be prepared), wash stands, and charts on food values, on the relationship of weight to height, and on various other subjects connected with eating the proper foods in the right way. The fact that 136 schools were serving a hot lunch

[6]Cattaraugus County Board of Health *Annual Report*, 1927, p. 62.
[7]Cattaraugus County Board of Health *Annual Report*, 1927, p. 60.

daily meant that a large number of the children of the school population stood a better chance of being adequately nourished.[8]

While the concrete figures given above indicate the volume of work that was accomplished, they do not give much idea of the effectiveness of the work. Many evidences, however, of its value are already apparent, notably in the correction of underweight in school children and of consequent improvement in their school work. The principal of one of the high schools stated that as the boys and girls in his school were brought up to normal weight, by special instruction and the provision of milk in the middle of the morning session, their dispositions improved noticeably and discipline became correspondingly easier. That the nutrition instruction in connection with the school health program has perceptibly increased the children's knowledge of the principles of health, is indicated by the improvements in their health habits reported by their teachers. Simultaneously, an increased interest in the health problems of the school children is indicated by enthusiastic reports of the teachers who have cooperated in the work, and by letters of parents commenting favorably upon the influence of the work upon their children.

Some amusing illustrations of this influence have been furnished by the parents. One lad told his mother what he had learned in school about food values. "Well," said his mother, "that is just what I've been telling you for a year." "Yes, mother," replied the boy, "I know it, but I didn't realize before that you really knew what you were talking about."

Another story is that of a little girl who, much impressed by a health talk on the value of vegetables, asked her mother what vegetables were being prepared for dinner. The mother, much surprised at this unusual interest, was even more sur-

[8]Milbank Memorial Fund *Quarterly Bulletin*, July, 1925, p. 10.

prised when her young daughter, insisting upon an answer, said, "Mother, I'd really like to know, because you know the most important thing in my life just now is that I get a good variety of vegetables."

In order to ascertain as nearly as possible by such a procedure what effect the educational campaign in nutrition had had upon their food habits, follow-up visits were made in 1927 to the families whose dietary habits were studied in the nutrition survey in 1924. It was found that seven of the families had either moved away from the County, or no longer existed as family units. Many dietary changes were reported by the remaining ninety-three families, and, judged according to the standards set up by the New York State College of Home Economics and the New York Association for Improving the Condition of the Poor, these changes were on the whole for the better. Twenty-two families reported that they had been using more milk, and forty-eight that they were eating more vegetables of various kinds. Thirty-eight families had increased their use of green vegetables, while fifty-three families had become more accustomed to eating certain vegetables raw.

The increased use of vegetables, and especially of green vegetables, represented a valuable change in dietary practice. As has been stated before, many of the families living on farms had been stimulated to plant gardens so that an abundant supply of green vegetables might be available for home use. Gardens had become popular and had increased in number and size. It was evident, too, that a greater variety of vegetables were planted from year to year. As a result, the farm families in particular had been enabled to have a good supply of fresh vegetables during the summer months and to preserve a supply sufficient for the winter. The New York State Agricultural College had helped with valuable informa-

tion regarding methods of preserving vegetables, and a number of the families that had benefited from this instruction stored the winter supply of vegetables meticulously, wrapping separately in paper such vegetables as carrots.

Other increases in the use of foods essential to good dietary practice were reported. Forty-eight families were eating more fruit; forty-seven, more tomatoes; thirty-five, more whole grain cereals; fifty, more whole grain bread; and thirty-three, more eggs. Accompanying these increases in the use of foods essential to good health was the decrease in the use of meat, forty-one families reporting that they used less meat than before the advent of the nutrition service.

These changes would indicate that constructive work had been accomplished. On the other hand, there were some findings that were not so encouraging. For example, it was found that the quantity of sugar used was still greater than desirable and that the use of butter fat was limited—in fact, much below the one pound per man per week required to meet the standard.

That the constructive changes in dietary practices just described have been accompanied by correspondingly better health conditions is indicated by the statements from the families themselves. From their own statements it would appear that 117 persons were improved in health and they believed that this was the result of changes made in their food habits. Seventy-six persons reported fewer headaches; forty-three, less constipation; and twenty-five, less indigestion. Forty children, previously underweight, had gained in weight, while fourteen adults, formerly overweight, had reduced their weight.

Evidences of appreciation of the value of the technical knowledge of the nutritionist were constantly present during this re-survey of the families who had participated in the

initial study. Almost every family asked for advice upon some special dietary problem, such as methods of increasing or reducing weight, relieving constipation or indigestion, the proper diet for a person suffering from anemia, or the kinds of food to be prepared for small children. New recipes and suggestions relative to habit formation were given many of the families, and the homemakers were encouraged to serve whole grain cereals as part of their cereal food at every meal in the hope that every member of the family would eventually learn to eat it for his own good, even though he should not actually find it palatable. At the time of this follow-up survey, also, the nutritionist supplied each homemaker with a copy of the Cornell Food Selection Score Card Standards.[9]

While considering the dietary changes effected in these families, together with the accompanying health changes, it should be borne in mind that no special work was done with the families whose food habits were studied by the nutritionist. Aside from a few suggestions made at the time of her initial visit, all of the nutrition instruction given to the homemakers of these families was given indirectly through the channels previously described. One aim of the follow-up visits was to discover, if possible, the channels through which families had been influenced to change their dietary habits during the three years intervening between the initial survey and the re-survey. Forty-nine of the homemakers in these families gave credit for the training they received to the Home Bureau; thirty-two stated that they received help from the instruction their children received in the schools, and thirty-four that they had been influenced through the public health nurses.[10] The dietary changes effected in the

[9]Cornell Bulletin for Home Makers. (*Extension Bulletin 70*, October, 1923; revised September, 1928.) Published by the New York State College of Home Economics at Cornell University, Ithaca, New York.

[10]The findings of the 1927 follow-up on the 1924 dietary survey are in two unpublished reports by Miss Genette Wierman, December 31, 1927, and March 3, 1928.

hundred families serve as a sample only, but they do indicate to some extent the influence of the educational nutrition program. For example, the Home Bureau in 1926 reported that more than 400 persons reached through its members had testified to better health as a result of changes made in their food habits. In June of the same year a check of clinic, school health, and other records showed that since the inauguration of the nutrition service in April, 1924, there had been effected 1,334 definite changes in the diet of individuals.[11]

The increased supply of such food commodities as fruit, green vegetables, and whole grain cereals kept throughout the year by many of the country stores is another indication of the community-wide influence of the nutrition instruction. Some of the proprietors of these stores tell interesting stories to illustrate why it was necessary for them to increase or add to their stock of essential food supplies. For example, as the result of a talk the nutritionist made to a group of Home Bureau women on the nutritive value of cabbage, a merchant of one community sold a carload of this vegetable in a week, whereas it had previously required a month for him to dispose of this amount.[12]

In 1927, the nutrition worker endeavored, by means of a questionnaire[13] sent to all the grocers in the County, to discover the extent to which the demand for certain food commodities essential to good health had influenced the local grocers in increasing or adding to their regular stock. Fifty-six grocers and proprietors of stores dealing in general merchandise from various parts of the County answered the questionnaires, and the tabulated findings show the wide-

[11]Gebhart, John C., op. cit.

[12]Milbank Memorial Fund *Quarterly Bulletin*, July, 1925, p. 8.

[13]A copy of this questionnaire may be obtained from the Milbank Memorial Fund.

spread effects of the nutrition instruction. The majority of the fifty-six stores were carrying all of the food commodities listed on the questionnaire and a large number of them reported an increased sale, since 1924, of whole grain cereals, whole wheat and graham bread, graham flour, fresh fruits and vegetables. In some instances the grocers reported that the sale of one or another of these commodities had doubled or tripled since 1924. With only a few exceptions, the stores reporting supplied both fresh fruits and fresh vegetables to their customers daily or at least semi-weekly, whereas before the advent of the nutrition service a bare handful of country stores kept these supplies in stock regularly.

As was pointed out in an earlier paragraph, the Cattaraugus County Board of Health in inaugurating the nutrition program did not contemplate employing the nutritionist on its staff after it was believed she had sufficiently acquainted its staff members and others engaged in community services, with the general principles of her work sufficiently to enable them to incorporate these teachings into their daily activities. The salary and travel expenses of the nutritionist involved an annual outlay of $3,500, and it was not believed relatively judicious to include this item in the permanent budget of the County Health Department. Accordingly, the special nutrition service was terminated at the end of the year 1927.

It was believed, however, that a certain amount of specialized supervision and service should be provided each year in order to stimulate the continued application of the lessons of the nutrition demonstration. It was hoped to secure service of this character through occasional visits of special nutrition workers employed by the State Department of Health and by the State Department of Education. Upon occasion, it was expected that temporary service would be

secured for such purposes as furnishing instruction to new nurses employed on the staff, and to organized groups working under the supervision of the Home Bureau and of other voluntary organizations. In a program which was under consideration as this report went to press, a service calling for approximately one month annually of a specialist's time was recommended for this purpose—preferably in the form of two visits to the County of about two weeks each. It is estimated that the annual cost of such a program would be $500, the salary of a nutrition specialist for part-time work on the basis of two visits to the County of about two weeks each being $300, and traveling and miscellaneous expenses amounting to $200. It is believed that this program is practical and one which the County might reasonably be expected to continue on a permanent basis.[14]

[14] A Suggested Public Health Program for Cattaraugus County 1928–1932, pp. 23, 24; an unpublished document of the Committee on Tuberculosis and Public Health of the New York State Charities Aid Association.

BIBLIOGRAPHY USED IN PREPARATION OF THE DIETARY SURVEY

Andrews, B. F.: "Economics of the Household," J. B. Lippincott Company, Philadelphia.

"Agricultural Year Book, 1907," pp. 361-378, United States Department of Agriculture, Washington, D. C.

Bruere, Martha: "Increasing Household Efficiency," The Macmillan Company, New York.

"Bulletin, No. 122, United States Children's Bureau, Washington, D. C.

Charlton, F. T.: "Industrial Situation," Fleming and Revell, Boston.

Gillett, Lucy H.: "Adequacy and Economy of Some City Dietaries," The New York Association for Improving the Condition of the Poor, New York.

Gillett, Lucy H.: "Good Nutrition and Adequate Food Allowance for the Family," The New York Association for Improving the Condition of the Poor, New York.

Manuscript material on "Diet" and "Nutrition" from the nutrition department of New York State College of Home Economics.

Noble: "Cost of Living in a Small Factory Town," pp. 5-11, New York State College of Agriculture, Ithaca.

Pearl, Raymond: "The Nation's Food," J. B. Lippincott Company, Philadelphia.

Rose, Mary Schwartz: "Feeding the Family," The Macmillan Company, New York.

Rose, Mary Schwartz: "Laboratory Manual for Dietetics," The Macmillan Company, New York.

Sherman, J. C.: "Chemistry of Food and Nutrition," The Macmillan Company, New York.

Sherman, J. C.: "Food Products," The Macmillan Company, New York.

ADDENDA

SUPERVISORY AND OPERATING ORGANIZATIONS
AND PERSONNEL *of*

THE RURAL HEALTH DEMONSTRATION
in CATTARAUGUS COUNTY, NEW YORK

The New York Health Demonstrations were instituted by the Milbank Memorial Fund in 1923. They comprised three separate projects in intensive community health administration in New York State —one in rural Cattaraugus County, another in the urban community of Syracuse, and the third in the metropolitan Bellevue-Yorkville district of the City of New York.

The Board of Directors of the Milbank Memorial Fund set aside approximately $2,000,000 to be used over a period of years in supplementing the resources of public and private health agencies in these demonstration localities to help them develop locally effective methods of advancing disease prevention and health conservation.

Through the Fund's Advisory Council, Technical Board and other advisory groups, there has been available to the demonstration communities expert consultation and counsel in the several fields of public health administration. These boards are composed of leaders in the fields of education, medicine, and public health administration, including the Surgeon General of the United States Public Health Service and the Commissioners of Health of the State and City of New York.

In initiating and in forwarding these demonstrations, as in seeking to reach its other humanitarian objectives, the Milbank Memorial Fund has co-operated with, and made its contributions through, established organizations, official and voluntary, and has thus attempted to capitalize existing organization and personnel. Each demonstration has been under the auspices of the local departments of health and education, and directly or indirectly under the supervision of the local health officers.

Acting as a liaison agency between these local groups in the Cattaraugus County and Syracuse health demonstrations and the Milbank Fund and its boards of counsel, has been the State Committee on Tuberculosis and Public Health of the State Charities Aid Association. The Community Health Council has acted in a similar capacity for the Bellevue-Yorkville Health Demonstration in the City of New York. The Council is composed of fifty-six local health and social agencies, including the Department of Health of the City of New York.

SUPERVISORY *and* ORGANIZING AGENCY

of the

RURAL HEALTH DEMONSTRATION *in* CATTARAUGUS COUNTY

STATE CHARITIES AID ASSOCIATION

STATE COMMITTEE ON TUBERCULOSIS AND PUBLIC HEALTH

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The State Committee on Tuberculosis and Public Health of the State Charities Aid Association (which in May, 1922, was designated by the Milbank Memorial Fund's Board of Directors to represent the Fund in organizing and supervising the rural health demonstration in Cattaraugus County, and the urban health demonstration in the City of Syracuse) has from the first cooperated in developing the various health activities in the demonstration programs in these two areas, assisted in the preparation of new projects, and provided advisory services for the local operating agencies. Through its state-wide contact with health and welfare agencies, it has been of assistance, for example, in securing personnel, in providing special facilities for the study and analysis of the various health projects, and in helping local agencies in the formulation and presentation of budgets and reports to the Milbank Memorial Fund. It submits recommendations as to budgets and programs for each area.

Through visits, conferences, and a system of monthly reports, the State Committee kept in intimate touch with the progress and developments of the work in each area. It submitted monthly, semi-monthly, and annual financial statements to the Technical Board and Board of Directors of the Fund.

In general, the State Committee acted as a liaison agency between the local operating organizations on the one hand and the boards of counsel of the Milbank Memorial Fund and other state and national groups on the other, thus providing for these two health demonstrations a constructive background based on the accumulated experience of state and national authority upon which the success of the demonstrations in no small measure depends.

LOCAL SUPERVISORY *and* OPERATING ORGANIZATIONS

and PERSONNEL *of*

The RURAL HEALTH DEMONSTRATION

in CATTARAUGUS COUNTY, NEW YORK

Cattaraugus County Board of Health

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County School Health Service

C. A. GREENLEAF, M.D., *Director*

County Tuberculosis and Public Health Association

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